In the Claims:

1. (Currently Amended) A fieldbus component comprising:

a data link layer, which operates with a fieldbus protocol,

a physical layer constituted for high speed data transmission,

~~an interface~~ a standardized medium-independent interface connecting said data link layer and said physical layer, and

a layer for matching said data link layer, ~~which operates with a fieldbus protocol,~~ to said ~~physical layer.~~ standardized medium-independent interface by embedding the data coming from said data link layer into a frame to be transmitted, the frame being accepted by said standardized medium-independent interface.

2. (Canceled)

3. (Original) The fieldbus component according to claim 1, in which said data link layer comprises a medium access control layer, a basic connection layer, a peripheral data connection layer and a network management layer.

4. (Currently Amended) The fieldbus component according to claim ~~2~~ 1, in which said data link layer comprises a medium access control layer, a basic connection layer, a peripheral data connection layer and a network management layer.

5. (Original) The fieldbus component according to claim 1, in which said physical layer constituted for high speed data transmission is constituted according to the IEEE 802.3u standard of the Fast Ethernet.

6. (Original) A communication system, comprising at least one fieldbus component according to claim 1 and a high speed data transmission medium, to which said at least one fieldbus component is connected.

7. (Original) The communication system according to claim 6, in which said high speed data transmission medium has a linear structure and said fieldbus component is actively coupled to said high speed data transmission medium.

8. (Original) The communication system according to claim 6, in which said high speed data transmission medium has at least one branch.

9. (Currently Amended) A process for transmission of data over a high speed data transmission medium to which several fieldbus components are coupled, comprising the following process steps:

(a) ~~combining~~ receiving data ~~to be transmitted into a transmission frame in a data link layer of a fieldbus component~~ coming from the data link layer of a fieldbus component, which uses a fieldbus protocol//;//, at a matching layer connecting said data link layer and a standardized medium-independent interface of said fieldbus component,

(b) matching said data link layer to said standardized medium-independent interface by embedding said dta into a transmission frame, said frame being accepted by said standardized medium-independent interface, and

(c) passing on said transmission frame to a physical layer of said fieldbus component, said physical layer being ~~that is~~ constituted for high speed data ~~transmission~~; and

~~(c)~~ (d) feeding said data to be transmitted to said high speed data transmission medium via said physical layer.

10 (Currently Amended) The fieldbus component according to claim ~~2~~ 1, in which said physical layer constituted for high speed data transmission is constituted according to the IEEE 802.3u standard of the Fast Ethernet.

11. (Currently Amended) A communication system, comprising at least one fieldbus component according to claim ~~2~~ 1, and a high speed data transmission medium, to which said at least one fieldbus component is connected.

12. A communication system, comprising at least one fieldbus component according to claim 3 and a high speed data transmission medium, to which said at least one fieldbus component is connected.

13. A communication system, comprising at least one fieldbus component according to claim 4 and a high speed data transmission medium, to which said at least one fieldbus component is connected.

14. A communication system, comprising at least one fieldbus component according to claim 5 and a high speed data transmission medium, to which said at least one fieldbus components connected.